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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/879,323	06/12/2001	Masaki Ichihara	14699	5105
23389	7590	11/08/2005	EXAMINER	
SCULLY SCOTT MURPHY & PRESSER, PC 400 GARDEN CITY PLAZA SUITE 300 GARDEN CITY, NY 11530			PHUNKULH, BOB A	
			ART UNIT	PAPER NUMBER
			2661	

DATE MAILED: 11/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/879,323

Applicant(s)

ICHIHARA ET AL.

Examiner

Bob A. Phunkulh

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 August 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☒ Claim(s) 8-11 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

This communication is in response to applicant's 08/302/2005 amendment(s)/response(s) in the application of **ICHIHARA et al.** for "**ORTHOGONAL FREQUENCY DIVISION MULTIPLEX MODEM CIRCUIT**" filed 06/12/2001. The amendments/response to the claims have been entered. No claims have been canceled. No claims have been added. Claims 1-11 are now pending.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3, 5, are rejected under 35 U.S.C. 103(a) as being unpatentable over *Ring* (US 6,430,148) in view of *Hoo et al.* (Discrete Dual Qos Loading Algorithms For Multicarrier Systems, IEEE 1999), hereinafter *Hoo*.

Regarding claim 1, *Ring* discloses an OFDM circuit which uses a plurality of sub carriers for communication, and transmits and receives a plurality of communication channels, wherein the plurality of sub carriers are divided into groups (a first group of OFDM sub-channels for an uplink channel) and each of the groups are assigned one group per each of the plurality of communication channels (a second group of OFDM sub-channels for a down link channel), respectively (see abstract).

Ring fails to disclose each of the plurality of channels capable of transmitting and receiving different types of communications from the other of the plurality of communication channels, where each type of communications has different bit rates, QOS (Quality of Service) and priorities which are caused by the different types of communications.

Hoo, on the other hand, discloses the plurality of channels capable of transmitting and receiving different types of communications from the other of the plurality of communication channels, where each type of communications has different bit rates, QOS (Quality of Service) and priorities which are caused by the different types of communications (see abstract and introduction). It is well known in the art that "QOS" includes rates, and priority of traffic.

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention was made provides the teaching of *Hoo* especially allocating sub-channels or sub-carriers according to different QOS requirements in the system taught by *Ring* in order to provides efficient use of limited system resources while providing near optimal performance.

Regarding claim 2, *Ring* discloses the assignment of sub carrier groups to the respective communication channels is adaptively performed (see col. 2 lines 1-7).

Regarding claim 5, *Ring* discloses all sub carriers are assigned to a signal channel as required, while communication of other channels is stopped (see col. 2 lines 8-23).

Claims 3, and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of *Ring-Hoo* as applied to claim 1 above, and further in view of *Yonge, III et al.* (US 6,442,129), hereinafter *Yonge*.

Regarding claims 3, 6, *Ring* fails to disclose the modulation system given to each of the sub carrier groups is changed (QPSK or QAM or BPSK) according to QOS needed for a corresponding communication channel.

Yonge, on the other hand, discloses changing the modulation schemes based on the channel condition i.e. to QPSK or QAM or BPSK (see col. 1 lines 6-15; col. 1 lines 34-44; col. 2 lines 47-60; and col. 8 lines 13-30).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention was made includes the teaching of *Yonge* in the system taught by the combination of *Ring-Hoo* in order to reduce impulse noise which can produce bursts of error on the transmission channel.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of *Ring-Hoo-Sakoda* as applied to claim 3 above, and further in view of *Manson et al.* (US 5,488,632), hereinafter *Manson*.

Regarding claim 7, the combination of *Ring-Hoo-Sakoda* fails to disclose the peak values of modulation symbols are determined so that transmission power of the respective sub carriers becomes the same irrespective of the modulation systems.

Manson, on the other hand, discloses the peak values of modulation symbols are determined in OFDM system (see col. 9 lines 31-42).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention was made includes the teaching of *Manson* in the system taught by the combination of *Ring—Hoo-Sakoda* such that the peak of each modulated carrier occurs at a frequency corresponding to nulls for all of the other modulated carrier.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of *Ring-Hoo-Sakoda* as applied to claim 1 above, and further in view of *Sakoda et al.* (US 6,195,534), hereinafter *Sakoda*.

Regarding claim 4, *Rin-Hoo* fails to disclose means for randomizing alignment of the respective subcarriers on a frequency axis is included in a transmitting side, and means for de-randomizing a signal where the alignment is randomized is included in a receiving side.

Sakoda, on the other hand, discloses the sub carriers having the high priority data superimposed and the sub carriers having low priority data superimposed are positioned alternately is transmitted i.e. (randomizing the alignment of the respective sub carriers), and at the receiving side, a predetermined reception processing is performed on the transmission signal to obtain reception symbol stream being the

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alignment of symbols on the frequency axis (see col. 5 lines 45-60; col. 6 lines 6-20; and col. 6 lines 51-65).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention was made includes the teaching of *Sakoda* in the system taught by *Ring-Hoo* in order to provide a transmitter in a cellular radio communication system with ability to transmits both high priority data and low priority data at the same time using a plurality of carriers.

Allowable Subject Matter

Claims 8-11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any response to this action should be mailed to:

The following address mail to be delivered by the United States Postal Service (USPS) only:

Mail Stop _____
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

or faxed to:

(703) 872-9306, (for formal communications intended for entry)

Or:

The following address mail to be delivered by other delivery services (Federal Express (Fed Ex), UPS, DHL, Laser, Action, Purolater, Hand Delivery, etc.) as follow:

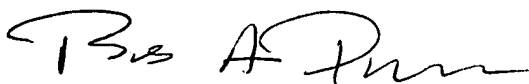
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220 20th Street South
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Crystal Plaza Two, Lobby, Room 1B03
Arlington, VA 22202.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Bob A. Phunkulh** whose telephone number is **(571) 272-3083**. The examiner can normally be reached on Monday-Tuesday from 8:00 A.M. to 5:00 P.M. (first week of the bi-week) and Monday-Friday (for second week of the bi-week).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor **Chau Nguyen**, can be reach on **(571) 272-3126**. The fax phone number for this group is **(571) 273-8300**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Bob A. Phunkulh
Primary Examiner
TC 2600
Art Unit 2661
November 01, 2005